



Australian Government



AUSTRALIAN INSTITUTE  
OF MARINE SCIENCE

TOWNSVILLE

DARWIN

PERTH

16 March 2010

House of Representatives  
Standing Committee on Industry, Science and Innovation  
PO Box 6021  
Parliament House  
Canberra ACT 2600

Dear Mr Chafer

### **Inquiry into Australia's International Research Collaborations**

Thank you for the opportunity to provide input into the Committee's inquiry into international research collaboration.

The Australian Institute of Marine Science (AIMS) is Australia's tropical marine research agency with capacity to investigate questions from molecular to ecosystem level. AIMS is recognised worldwide for the quality of its long-term and large-scale research into complex problems of environmental health and sustainable use of marine resources. Our focus is primarily the tropics and our research is supported by infrastructure that includes modern laboratories, controlled climate seawater systems, ocean observing facilities, and two modern coastal research vessels that operate across northern Australia.

Australia's marine territories are larger than our land mass, the third largest in the world. They extend across all climate zones from the Antarctic to the tropics. The responsibility on Australia to protect its marine biodiversity and the opportunities from sustainable use of its marine territories means that marine science is an area of importance nationally. Already, Australia's marine territory is a major and growing part of the Australian economy generating \$48.4 billion of economic activity in 2007-08, higher than the agricultural sector in the same period (AIMS Index of Marine Industry, 2009).

The benefits from international collaboration are significant to national capacity. Through its collaborative approach and strong international engagement, Australia is internationally recognised for the quality of its marine research – AIMS was named in the top 1% of specialist organisations making an international impact by the International Science Indicators (ISI); James Cook University and AIMS were ranked the top two research organisations by ISI in their review of coral ecology; and AIMS is in the top 1% in the citation fields of 'Environment and Ecology' and 'Animal and Plant Science'. This is achieved through strong national and international collaborative networks; networks that provide skills and capacity to address national challenges; and networks that ensure Australia remains at the cutting edge of innovation in marine research.

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International collaboration is critical to our science. Our oceans do not function in isolation, many of the challenges facing Australia are global issues (global change, water quality, declining fisheries, environmentally sustainable industry). Just as the results from our research have relevance to the globe, so too does international research have relevance to Australia. We must be engaged globally and have the capacity to assess and uptake relevant global advances in knowledge and technology to Australia's situation. A strong marine science capability is essential to Australia's future.

We provide brief comments against your terms of reference in the attachment. Please do not hesitate to contact us if you require further information.

Yours sincerely,

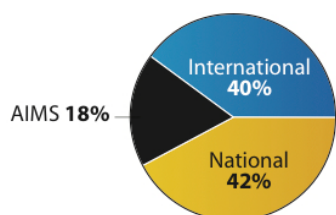
A handwritten signature in black ink, appearing to read "Ian Poiner". The signature is written in a cursive style and is positioned above a solid horizontal line.

Ian Poiner  
CEO

## Brief comments against the terms of reference.

### 1. The nature and extent of existing international research collaborations.

Collaboration is a foundation principle for our organisation. Less than 20 per cent of our 2008 publications were authored solely by AIMS staff (see pie chart below). Of the remaining collaborative peer-reviewed papers, 40 per cent were co-authored with international collaborators (see map below). These collaborative publications arise from our portfolio of 110 collaborations with 89 organisations from 15 countries.



**Collaborative scholarly publications 2008**



### 2. The benefits to Australia from engaging in international research collaborations.

- Our international collaborations enable us to expand the expertise we are able to apply to complex scientific problems and access techniques and technologies not available within Australia. This hub and spoke approach allows us to fill gaps in expertise, increase our critical mass and provide direct paths between ourselves and collaborators for technology transfer and diffusion.
- Targeted international collaboration provides a key mechanism by which AIMS can benchmark our science and maintain world class research capability.
- AIMS is a mission driven research organisation with a strong focus on national priorities. Our strong international research collaboration value adds to the Government's investment in our research. These international collaborations, together with national collaborations, bring greater research capacity to address Australia's challenges and build national innovation capabilities. The greatest limitation to AIMS' collaborative network is operational funds.
- Collaboration with strategically identified partners enables Australia to assess new sciences and technologies and provides a mechanism to make the most informed decision about future infrastructure and capacity investments needed to bring these new sciences and technologies "on-shore". In marine science, an example is the rapid development in molecular science which is providing new tools to investigate the role of marine microbes in the resilience of marine ecosystems to change.
- International collaboration also provides access to specialised science infrastructure (e.g. deep sea technologies in Japan, satellite technology in the United States).
- Several global programs have been critical to scientific agendas that influenced national interests (e.g. the Global Ocean Observing System). To have a seat at the table, Australian researchers and research organisations need to be engaged with these programs, preferably from their inception. This requires national investment commensurate with Australia's standing in the world to influence outcomes. It is also necessary to be able to identify and capture opportunity.

### 3. The key drivers of international research collaboration at the government, institutional and researcher levels.

- Government – e.g. bilateral S&T arrangements, treaties, access to science infrastructure
- Institutional – e.g. build critical mass, access to capabilities not available within the institution. As a

small specialist research organisation AIMS provides a good example of the value derived from the collaboration imperative.

- Researcher – complementary capabilities, critical mass, access to infrastructure.

#### *4. The impediments faced by Australian researchers when initiating and participating in international research collaborations and practical measures for addressing these.*

- Current programs are largely focussed on travel and while this may provide an opportunity to identify the opportunity for future collaboration the implementation is often limited by lack of operational costs. This should include support for researcher salaries because the existing funding model does not free already committed resources. In AIMS case, our existing co-invested research activities have committed the Institute's existing resources. Therefore, while there are links and opportunities for significant strategic research partnerships that would benefit national capabilities we are constrained by available funding and capacity.
- This approach would be consistent with what happens in some other countries where international researchers get funding to do work in Australia that cannot be done by the Australian researchers themselves. Australia also needs to build critical mass in appropriate science and technology by attracting international researchers and their teams to this country. To do this, we need competitive infrastructure and certainty of support for that infrastructure.
- Our small population can be a handicap when solutions to global challenges are developed overseas but need to be tailored to Australia's needs. Without participation in these global initiatives, Australian researchers do not obtain the in-depth knowledge and awareness required for their application in Australia.
- Strategic collaborations are often delayed until funds can be sourced. This increases the risk of missing an opportunity to bring additional capacity or emerging technologies to research addressing important issues.
- Rules associated with overseas funding sources can make it difficult for Australian researchers to participate in international collaborative projects (e.g. difficult for Australian research to access EU funding)

#### *5. Principles and strategies for supporting international research engagement.*

- Need larger grant options to support strategic longer term projects. Funding should include operational (not just travel) – fully co-invested – no resourcing to take on further collaboration
- Funding needs to consider support of teams not just individuals
- Need to provide funding to enable researchers and research teams to come to Australia
- Provide focus on priority areas for larger grants but continue to support researcher driven collaboration (the foundation of future partnerships)